AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously Presented) An attitude determination and control system for a spacecraft comprising:

an attitude sensor set comprising a plurality of sensors;

a processor adapted to receive input from the attitude sensor set, the processor being programmed with software that determines the attitude of the spacecraft during both transfer orbit operations and on-station operations based solely on the input received from one of the plurality of sensors; and

a means for controlling the spacecraft based on the attitude of the spacecraft determined by the processor.

2. (Previously Presented) The attitude determination and control system of claim 1, wherein the one of the plurality of sensors is a star tracker.

3. (Canceled)

4. (Previously Presented) The attitude determination and control system of claim 2, wherein the software determines spacecraft spin rate during both transfer orbit operations and on-station operations based solely on the input received from the star tracker.

5. (Previously Presented) The attitude determination and control system of claim 2, wherein the software determines spacecraft acceleration during both transfer orbit operations and on-station operations based solely on the input received from the star tracker.

6. (Withdrawn) The attitude determination and control system of claim 2, wherein the attitude sensor set further includes at least one inertial measurement unit.

7. (Withdrawn) The attitude determination and control system of claim 6, wherein the inertial measurement unit is a gyro device.

8. (Withdrawn) The attitude determination and control system of claim 7, wherein the gyro device is used at least in part to determine spacecraft spin rate.

9. (Withdrawn) The attitude determination and control system of claim 7, wherein the gyro device is used at least in part to determine the spacecraft attitude.

10. (Withdrawn) The attitude determination and control system of claim 7, wherein the star tracker data is used at least in part to determine the spacecraft attitude.

11. (Withdrawn) The attitude determination and control system of claim 7, wherein the attitude determination and control system uses the star tracker data to calibrate the gyro device.

12. (Withdrawn) The attitude determination and control system of claim 2, wherein the attitude sensor set further includes a solar panel current sensor.

13. (Withdrawn) The attitude determination and control system of claim 12, wherein the attitude determination and control system uses the solar panel current sensor at least in part for inputs to position the spacecraft body for power safety after loss-of-attitude.

14. (Withdrawn) The attitude determination and control system of claim 12, wherein the attitude determination and control system uses the solar panel current sensor at least in part to position the solar wing for power safety.

15. (Withdrawn) The attitude determination and control system of claim 12, wherein the attitude determination and control system uses the solar panel current sensor to validate an acquired stellar attitude.

16. (Canceled)

17. (Previously Presented) The attitude determination and control system of claim 1, wherein the means for controlling the spacecraft is a bi-propellant thruster.

18. (Withdrawn) The attitude determination and control system of claim 1, wherein the transfer orbit operations include an electrical propulsion transfer orbit operation.

19. (Withdrawn) The attitude determination and control system of claim 18, wherein the electrical propulsion transfer orbit operation is performed using a XIP engine.

20. (Withdrawn) The attitude determination and control system of claim 18, wherein the electrical propulsion transfer orbit operation is performed using a Hall Effect Thruster.

21. (Original) The attitude determination and control system of claim 1, wherein the processor includes electronic hardware.

22. (Canceled)

23. (Previously Presented) The attitude determination and control system of claim 1, wherein the spacecraft comprises solar wings positioned in a stowed configuration.

24. (Previously Presented) The attitude determination and control system of claim 1, wherein the spacecraft comprises solar wings positioned in a deployed configuration.

25. (Canceled)

26. (Canceled)

27. (Previously Presented) An attitude determination and control system for a spacecraft comprising:

a plurality of star trackers;

a processor adapted to receive input from the star trackers, the processor being programmed with software that determines the attitude of the spacecraft during both transfer orbit operations and on-station operations based solely on the input received from one of the star trackers; and

a means for controlling the spacecraft based on the attitude of the spacecraft determined by the processor.

28-34. (Canceled)

35. (Currently Amended) An attitude determination and control system for a spacecraft comprising:

an attitude sensor set used for both transfer orbit operation and on-station operation of the spacecraft, the attitude sensor set consisting of ~~at least one~~ a predetermined number of star trackers; and

a processor connected to the attitude sensor set such that the processor receives input from the attitude sensor set, the processor being programmed with software used for both transfer orbit and on-station attitude determination using solely the input from the attitude sensor set.

36. (Currently Amended) An attitude determination and control system for a spacecraft comprising:

an attitude sensor set used for both transfer orbit operation and on-station operation of the spacecraft, the attitude sensor set consisting of ~~at least one~~ a predetermined number of star trackers and at least one gyro device; and

a processor connected to the attitude sensor set such that the processor receives input from the attitude sensor set, the processor being programmed with software used for both transfer orbit and on-station attitude determination using solely the input from the attitude sensor set.